Date: Fri, 9 Apr 93 11:04:14 PDT

From: Info-Hams Mailing List and Newsgroup <info-hams@ucsd.edu>

Errors-To: Info-Hams-Errors@UCSD.Edu

Reply-To: Info-Hams@UCSD.Edu

Precedence: Bulk

Subject: Info-Hams Digest V93 #442

To: Info-Hams

Info-Hams Digest Fri, 9 Apr 93 Volume 93 : Issue 442

Today's Topics:

(none)

40M antenna question Accomodation in Dayton needed

A New DSP Contest is Okay

How to preserve Alinco 580 Buttons

jammer in slammer

Need recommendation on tuner

RFD: reorganization of rec.radio.amateur (2 msgs)

rigs for 70 cm band

Want Jammer in Slammer (2 msgs)

Send Replies or notes for publication to: <Info-Hams@UCSD.Edu> Send subscription requests to: <Info-Hams-REQUEST@UCSD.Edu> Problems you can't solve otherwise to brian@ucsd.edu.

Archives of past issues of the Info-Hams Digest are available (by FTP only) from UCSD.Edu in directory "mailarchives/info-hams".

We trust that readers are intelligent enough to realize that all text herein consists of personal comments and does not represent the official policies or positions of any party. Your mileage may vary. So there.

Date: 9 Apr 93 15:18:03 GMT

From: news-mail-gateway@ucsd.edu

Subject: (none)

To: info-hams@ucsd.edu

Subject: * SpaceNews 12-Apr-93 *

SB NEWS @ AMSAT \$SPC0412 * SpaceNews 12-Apr-93 *

BID: \$SPC0412

======= SpaceNews ======

MONDAY APRIL 12, 1993

SpaceNews originates at KD2BD in Wall Township, New Jersey, USA. It is published every week and is made available for unlimited distribution.

* STS-56 LAUNCH SIGHTINGS *

The Space Shuttle Discovery lit up a significant portion of the Eastern Coast of the U.S. as it lofted the STS-56 crew into a highly inclined orbit trajectory. The spectacular night launch occurred on time at 05:28:59.95 UTC or 1:29 am Eastern Daylight Time on 08-Apr-93.

Individuals as far north as New York saw the Space Shuttle roar up the East Coast on its nightly trajectory. In the Washington D.C. area, several people saw the Shuttle for approximately 1 minute as it raced from Southeast to almost due East. When the shuttle main engines cut off at 8 minutes and 40 seconds into the flight, the Shuttle virtually disappeared from view.

Walt Daniel, N3KVQ, described it as follows:

"I stayed up and watched the skies to the East from the QTH in Annapolis (Maryland). The launch took place at 1:29 AM EDT on 8 April 1993. At about 1:36 AM EDT, I saw the Shuttle come into view. It was brighter than Jupiter and moving pretty quickly (across about 60 degrees of azimuth in one minute). The elevation never got above 10-15 degrees; if the leaves had been on the trees, I would not have been able to see it. The most interesting aspect of the sighting was that I could clearly see the brightness fade as the Shuttle main engines were shut down (I was listening to the WA3NAN rebroadcast). The shutoff took place at about 1:37 AM and I could not see the Shuttle after several seconds."

The STS-56 ATLAS-2 mission will carry out atmospheric investigations of the Earth's Ozone layer during the planned 9 day flight. Also, on-board as a secondary payload is the Shuttle Amateur Radio Experiment (SAREX). SAREX allows school groups and amateur radio operators to talk to the Shuttle Crew while they are on orbit.

[Info via Frank H. Bauer, KA3HDO of the SAREX working group.]

* STS-56 SAREX INFO *

STS-56 Shuttle Amateur Radio Experiment (SAREX) Information Sheet:

Mission: STS-56 Space Shuttle Discovery

ATLAS-2 Spacelab Mission

Launch: April 8, 1993, 05:28:59.95 UTC

Orbit: 57 degree inclination, 160 nautical miles

Amateur Radio

Operators: Ken Cameron, KB5AWP, Ken Cockrell, KB5UAH,

Mike Foale, KB5UAC, Ellen Ochoa, KB5TZZ, and

Steve Oswald, KB5YSR

Modes: FM Voice

Prime callsign KB5AWP

Packet Radio Callsign W5RRR-1

2-way SSTV

Callsign W5RRR/S

ATV Uplink (prescheduled)

Frequencies: All operations in split mode. Do not transmit on

the downlink frequency.

Voice Freqs: Downlink: 145.55 MHz (Worldwide)

Uplinks: 144.91, 144.93, 144.95, 144.97, 144.99

MHz (Except Europe)

144.70, 144.75, 144.80 MHz (Europe only)

Note: the crew will not favor any specific uplink frequency, so your ability to work the crew will

be the "luck of the draw"

Packet Freqs: Downlink: 145.55 MHz

Uplink: 144.49 MHz

QSL Info: Send you QSL or Listeners Report to:

STS-56 OSL

C/O Vienna Wireless Society

P.O. Box 418 Vienna, VA 22183

Include a self addressed stamped envelope. Non-US stations should include the appropriate number of IRCs with your QSL or a \$0.50 U.S. stamp on the envelope.

Report should include callsign, whether worked/heard, date, UTC time, mode, frequency, and QSO number for packet connects.

Info: Goddard Amateur Radio Club, WA3NAN, Greenbelt, Maryland

SAREX Bulletins and Shuttle Retransmissions

3860 KHz, 7185 KHz, 14,295 KHz, 21,395 KHz, 28,650 KHz

and 147.45 MHz (FM)

Johnson Space Center ARC, W5RRR, Houston, Texas

SAREX Bulletins

7225 KHz, 14,280 KHz, 21,395 KHz, 28,650 KHz, (SSB)

and 146.64 MHz (FM)

ARRL Amateur Radio Station, W1AW, Newington, CT

SAREX News Bulletins

3990, 7290, 14,290, 18,160, 21,390, and 28,590 KHz

and 147.555 MHz (FM)

Also, bulletins available on internet, via AMSAT ANS,

Compu\$erve, and your local PBBS.

School Group Participation: 18 school groups will participate

in SAREX with pre-scheduled direct contacts. These include 13 in the U.S., 2 in England, and one in Portugal, South Africa and Australia.

* STS-56 ORBITAL DATA *

STS-56

1 22621U 93 23 A 93 99.35573237 0.00060694 00000-0 17456-3 0 65

2 22621 57.0004 173.7108 0006458 269.1315 90.9023 15.92628514 183

Satellite: STS-56 Catalog number: 22621

Epoch time: 93099.35573237 (09 APR 93 08:32:15.28 UTC)

Element set: GSFC-006

Inclination: 57.0004 deg

RA of node: 173.7108 deg Space Shuttle Flight STS-56

Eccentricity: 0.0006458 Keplerian Elements

Arg of perigee: 269.1315 deg Mean anomaly: 90.9023 deg

Mean motion: 15.92628514 rev/day Semi-major Axis: 6673.0627 Km
Decay rate: 0.61E-03 rev/day*2 Apogee Alt: 298.98 Km
Epoch rev: 18 Perigee Alt: 290.37 Km

NOTE - This element set is based on NORAD element set # 006.

The spacecraft has been propagated to the next ascending node, and the orbit number has been adjusted to bring it into agreement with the NASA numbering convention.

[Info via Ron Parise, WA4SIR, at the Goddard Space Flight Center]

* FEEDBACK/INPUT WELCOMED *

Mail to SpaceNews should be directed to the editor (John, KD2BD) via any of the following paths:

FAX : 1-908-747-7107

UUCP : ...catfish.ocpt.ccur.com!ka2qhd!kd2bd

PACKET: KD2BD @ NN2Z.NJ.USA.NA

INTERNET : kd2bd@ka2qhd.ocpt.ccur.com -or- kd2bd@amsat.org

MAIL : John A. Magliacane, KD2BD

Department of Engineering and Technology

Advanced Technology Center Brookdale Community College Lincroft, New Jersey 07738

U.S.A.

<--- SpaceNews: The first amateur newsletter read in space! -->>

/EX

- -

John A. Magliacane, KD2BD \star /\/\ \star Voice : 1-908-224-2948

Advanced Technology Center |/\/\| Packet : KD2BD @ NN2Z.NJ.USA.NA
Brookdale Community College |\/\/| Internet: kd2bd@ka2qhd.ocpt.ccur.com
Lincroft, NJ 07738 * \/\/ * Morse : --- -... ---- -...

Date: 8 Apr 93 17:53:10 GMT

From: saimiri.primate.wisc.edu!usenet.coe.montana.edu!ogicse!hp-cv!hp-pcd!

news1.boi.hp.com!cupnews0.cup.hp.com!nsa.hp.com!hpscit.sc.hp.com!hplextra!hpcc05!

hpwrce!tonyz@ames.arpa

Subject: 40M antenna question

To: info-hams@ucsd.edu

My experiences:

If you have an attic, you could construct indoor antennas outlined in several books...they generally stink though. I had a condo with an attic and I shared the upper attic area with a neighbor. I put in a full size 66ft approx 40 meter wavelength dipole and I got out using 100 watts well enough to make stateside contacts...but I also found that I was cause RFI throughout the building and phones due to the proximity of the antenna to stereo's etc....

Never tried one of those small wierd looking box looking jobs in the magazines, nor heard if they work. Another alternative is to use a tuner and run a long wire out to an anchor point using a quarter wavelength.. this is only about 30 ft approx for 40m.

Any way you look at it, you're pretty much screwed. Especially if you are Tech with QRP. Please dont become frustrated though... you know, you are destined to pretty much just answer CQ's instead of calling because even with a good antenna system, a QRP'r usually wont get a callbk when calling unless conditions i.e. QRM, QRN etc are right. You will get more contacts by answering CQ's, believe me. Unless you want to practice sending --- a lot...:-)

I currently have a QRP rig set up with a 1/4 wave long wire and tuner up about 30 ft and it works fine.

4 ft up will work, but remember, this is half your station...and running QRP...well, good luck. You would have more fun running more power for now. If you can get a long wire up and out, and dont want neighbors asking what the wire is for, try using magnet wire... the real small stuff..if works great for QRP and will hardly be noticed... I have used this trick.

You might also try finding out if the owner will let you install a vertical. There are multiband verticals available which dont need radials nowadays, and you might even be able to mount it some way to the fence.

Remember, dont become frustrated...QRP is fun! It is just different and more difficult..it requires more patience that running 100W barefoot with a tower and beam...

You will find out when you work that Thunderbay, Australia station with 4 watts!

```
Good luck, om
Tony.
Date: Fri, 9 Apr 1993 13:28:38 GMT
From: usc!cs.utexas.edu!utnut!torn!watserv2.uwaterloo.ca!watserv1!
rnelson@network.UCSD.EDU
Subject: Accomodation in Dayton needed
To: info-hams@ucsd.edu
A friend of mine wishes to find accomodation in Dayton for the Hamvention
for Friday and Saturday nights. I would appreciate anyone in the Dayton
area that might be able to check out spots to let me know. We could then
start up a dialogue.
73 and tnx
Randy
Randy Nelson VE3WRN Ontario Representative
                                               rnelson@watserv1.uwaterloo.ca
197A Cedarvale Cr. Disability Information ...uunet!watmath!watserv1!rnelson
WATERLOO, ON
                    Services of Canada.
                                              rnelson@watserv1.waterloo.edu
               (519)884-2989 (Voice and TDD) VE3WRN @ VE3EUK.ON.CAN.NA
N2L 4T3
-----
Date: 9 Apr 93 13:52:52 GMT
From: opel!slc1!vk2bea!michael@uunet.uu.net
Subject: A New DSP
To: info-hams@ucsd.edu
 In article <1993Apr2.144727.29661@tellab5.tellabs.com> jwa@tellabs.com (John W.
Albert) writes:
>
>In case your interested in DSP's Here is an article that
>I worte, that appeared in the January 92 issue of QEX
 >
 >
                  A NEW DSP FOR PACKET
```

THE DSP25 BLOCK DIAGRAM/ DESCRIPTION

```
>The DSP25 is an inexpensive Digital Signal Processor that plugs
>into the 8 bit expansion port of an IBM PC or IBM compatible computer.
>The DSP can replace the TNC's analog filters, fsk demodulator or tone
>encoder. It can also be used as a digital audio filter for CW mode,
>THE ANALOG INTERFACE
>The Analog Interface chip converts the audio or linear signal to digital
>data. It transmits the data on a receive serial communications port to
>Here's a brief description
>The Analog Input
>The audio signal from an H.F. receiver/transceiver enters the analog
>interface chip and is converted to data. The data is sent to the DS
>Processor and it performs the mathematical functions
>(indicated by the blocks).
>Pre-filtering
>The first function is a sixth order Chebyshev bandpass filter. The
>filter reduces noise and improves the performance of the A.G.C.
Chebyshev filter??? This will really mess up the data! You want to
maintain the integrity of the data, but the poor group delay response
of this filter will create alot of intersymbol interference. Surely
a Bessel, FIR or other linear phase filter is what should be used.
( or have I miss-understood the use of this device?? )
Michael Katzmann
                                     Broadcast Sports Technology Inc.
~~~~~~~~~~~~
                                Crofton, Maryland. U.S.A
                           <
Amateur Radio Stations:
                                 >
NV3Z / VK2BEA / G4NYV / AAR3VK < opel!vk2bea!michael@uunet.uu.net
Date: Fri, 9 Apr 1993 11:46:18 GMT
From: news.Hawaii.Edu!uhunix.uhcc.Hawaii.Edu!shalamsk@ames.arpa
Subject: Contest is Okay
To: info-hams@ucsd.edu
```

In article <1993Mar30.185934.26561@nntpd2.cxo.dec.com> jepsen_st@10540.enet.dec.com (10540::jepsen_st) writes: >>>>But the WPX contest has me worried... the HF phone bands are one big >>>> etc. etc. etc. etc. >>>Contesting is as valid a use of the amateur bands as rag chewing, net >>>operations, etc. If it doesn't appeal to you, fine, do something else. >>> etc. etc. etc. etc. >>I really enjoy hunting DX during the WPX and the other world wide contests. >>However the bands are a shared resource and I don't believe that anyone >>or group should hog the whole band during a extended period of time. They >>could very easily stay in certain portions of the bands and let us non->>contesters enjoy our ragchews, nets, etc... I believe someone made a >>petition to the FCC tht would enforce this, don't know what happened >>to it. I do suspect that if they opened it up for public comment that >>they would be flooded with support for limiting the contesters. I have >>noticed some of the newer contests saying in the rules that the contest >>is limited to certain parts of the bands. This seems like a reasonable >>compromise. 73! >Yes the bands are a shared resource. Let's see there are probably 10 big >contest a year. Some of them are 48 hours long. Thats about 20 days a year. >20 days out of 365 days (20/365)=5%.

The way I see it, that is 20 weekends a year the entire (SSB|CW) half of all HF bands are inundated. 40 or 50 percent of PRIME TIME is eaten by the "59 12345, QRZ" monster.

>How about 80m check-in nets. Lets see they're on the entire 80 phone >band from 6PM to 9PM (west coast time) 7 days a week. That 3 hours a day >for 365 day a year (3*365)=1095 hours. At 24 hours per day that's (1095/>24)=45.63 days a year. So at 45 days a year (45/365)=12%.

We have here dozens of stations SHARING a single frequency, maybe even enjoying a contact. Certainly not just lying about signal reports ("You are 59, but I missed your callsign and report.")

>Regarding limiting contests to certain band segments. It's not a bad idea >just not practical. What part of 80m do you set aside for contest? The >DX window or net alley. How about 40m, the usable phone portion of 40 >is small already. Then there's 20m, etc. etc. >I dare you or anyone to draw up a plan that won't alienate some large group >or the other.

Actually, if the contesting gets much more aggressive, it will be outlawed, which only alienates contesters :-).

>Contesting doesn't appeal to everyone, neither does DXing or Traffic nets >or (your choice here). That doesn't mean it's not a fair, valid use of the >amateur bands.

It would be more palatable if it didn't force everything else off the bands on half the weekends of the year.

>Steve...AI7W

Thanks for your input, John KJ9U/KH6

- -

INTERNET: shalamsk@uhunix.uhcc.hawaii.edu, kj9u@uhm.ampr.org I speak for no one other than myself, of course.

Date: Fri, 9 Apr 1993 14:23:00 GMT

From: netcomsv!netcom.com!mjr@decwrl.dec.com Subject: How to preserve Alinco 580 Buttons

To: info-hams@ucsd.edu

Sorry this got posted to the wrong group at first...

quent@teal.csn.org (Quentin Johnson) wrote:

>I have the vinyl case but it's no good when I'm using the larger battery.

I took the case and cut the bottom out of it. It still holds its position, but now accommodates the large battery, and also protects the button. The belt clip holds it in the right place.

_ _

matthew rapaport Philosopher/Programmer At Large KD6KVH mjr@netcom.com 70371.255@compuserve.com

Date: 9 Apr 93 17:41:00 GMT From: news-mail-gateway@ucsd.edu

Subject: jammer in slammer To: info-hams@ucsd.edu

Often, contacting the ham with "we know who you are and we'll tell the world (including the FCC) if you do it again" Alternatively, contact the ARRL

section manager and see about getting the Amateur Auxiliary of the FCC on his/her tail. Good luck!

Nick Akers, ESTUQJ0@mvs.oac.ucla.edu

Date: 9 Apr 93 12:12:51 GMT

From: saimiri.primate.wisc.edu!usenet.coe.montana.edu!ogicse!hp-cv!hp-pcd!

news1.boi.hp.com!cupnews0.cup.hp.com!apollo.hp.com!hpwin052!hpqmoea!

dstock@ames.arpa

Subject: Need recommendation on tuner

To: info-hams@ucsd.edu

You can't rate an antenna tuner simply by power.

(Everyone does it, all the adverts do it, But they are misleading)

The limits on a tuner are the capacitors arcing, due to voltage, and coils etc unsoldering themselves due to current

What power levels these things happen at depends on how the tuner is set, IE. what the load impedance is, and what Q the atu is running internally. A typical 1kW unit will easily pass 1kW into 50 ohm resistive loads (when you don't need an ATU!) but the survivable power level reduces as the load gets further from the ideal 50 ohm pure R.

Even some of the monster tuners can be damaged at a hundred watts if they are adjusted to extreme impedances.

You can always get big external meters added to any unit, or even use a talking DVM unit, You are really only wanting relative indications.

Perhaps a talking power meter/ matching indicator would be a worthy thing to design. I can manage the RF/analogue, but I've no experience of speech synths.

Cheers

David GM4ZNX

Date: Thu, 8 Apr 1993 15:19:33 GMT

From: psgrain!m2xenix!clark!pacifier!mikef@uunet.uu.net

Subject: RFD: reorganization of rec.radio.amateur

To: info-hams@ucsd.edu

```
In article <1993Apr5.172426.3129@ve6mgs.ampr.org> mark@ve6mgs.ampr.org (Mark G.
Salyzyn) writes:
>As far as posting to news.groups (I know, you can not see the postings ...)
>there are several machines on the net that will take
    news.groups@<machine name>
>and post the article to that group for you! Almost any Internet machine
>worth it's salt (is that a challenge I hear :-) will do this!
Does ucbvax.berkeley.edu still exist (haven't tried to finger it)?
It hasn't been mentioned, so far as I am aware, in the ham radio
fag, for some time.
Mike Freeman <K7UIJ> | Internet: mikef@pacifier.rain.com
301 N.E. 107th Street | UUCP: uunet!m2xenix!nipple!pacifier!mikef
Vancouver, WA 98685 USA | GEnie: M.FREEMAN11
TElephone (206)574-8221 |
                             Pushing 40 is exercise enough!
Date: Fri, 9 Apr 1993 17:18:31 GMT
From: pa.dec.com!e2big.mko.dec.com!decabo.abo.dec.com!anarky.enet.dec.com!
brewer@decwrl.dec.com
Subject: RFD: reorganization of rec.radio.amateur
To: info-hams@ucsd.edu
In article <1993Apr5.161815.29284@ve6mgs.ampr.org>, mark@ve6mgs.ampr.org (Mark G.
Salyzyn) writes...
>cole@concert.net (Derrick C. Cole) writes:
>>>>My vote is to leave things alone...
>>>>Me too.
>>>Me three.
>>Me four. What's the point?
    Me Five
    /john
      | John Brewer | Internet: brewer@anarky.enet.dec.com |
         wb5oau | Packet | wb5oau@wb2ars
      _____
______
```

Date: Fri, 9 Apr 1993 12:48:13 GMT

From: usc!howland.reston.ans.net!gatech!kd4nc!ke4zv!gary@network.UCSD.EDU

Subject: rigs for 70 cm band

To: info-hams@ucsd.edu

In article <1993Apr5.172831.18824@hemlock.cray.com> dadams@cray.com writes:
>
>While thumbing through my latest AES catalog, I notice that several of
>the rigs advertized which operate on 70 cm offer the capability
>to transmit on 440-450 MHz. (Example Alinco DJ-580T handheld,
>DR-599T 2m/70cm mobile. Or on 438-450. (Example Kenwood
>TH-78A, TH-48A, TH-46AT.)
>
>But I notice that the 70 cm band goes from 420-450 MHz. Why don't
>these comercial rigs cover the band? Does most of 70 cm go unused?
>Why?

The primary FM operating area is 440-450, so you'd expect FM-only radios to cover only that segment. The 430-440 area is for weak signal and satellite operations, so most of the SSB/CW radios and transverters cover this segment. 420-430 is primarily ATV country. In addition, auxiliary link stations and packet backbones are tucked away in several parts of the band.

Until fairly recently it was difficult to make a clean radio that covered the entire band and still had good enough filtering to keep the commercial crud out of the receiver, and to keep the transmitter clean and efficient without manual tuning. The advent of broadband RF power modules, and PIN switched bandpass filters makes this easier today, but usage patterns are already set.

Garv

- -

Gary Coffman KE4ZV | You make it, | gatech!wa4mei!ke4zv!gary
Destructive Testing Systems | we break it. | uunet!rsiatl!ke4zv!gary
534 Shannon Way | Guaranteed! | emory!kd4nc!ke4zv!gary
Lawrenceville, GA 30244 | |

Date: 9 Apr 1993 12:26:42 GMT

From: swrinde!zaphod.mps.ohio-state.edu!darwin.sura.net!blackhole.delmarva.com!

mercury!scoggin@network.UCSD.EDU Subject: Want Jammer in Slammer

To: info-hams@ucsd.edu

In article 47540023@hpcuhe.cup.hp.com, donh@hpcuhe.cup.hp.com (Don Hay) writes:

> What can a person(s) do in this case. Anyone out there have this same > problem? What do you suggest to put an end to this guy?

```
>
Maybe some folks in the Reserves can scare you up a few ARM's (anti-radiation
missiles)... :-)
+-----
 John K. Scoggin, Jr. Email: scoggin@delmarva.com
| Supervisor, Network Operations Phone: (302) 451-5200
| Delmarva Power & Light Company Fax: (302) 451-5321
| 500 N. Wakefield Drive
                                 NOC:
                                        (800) 388-7076
| Newark, DE 19714-6066
The opinions expressed are not those of Delmarva Power, simply the |
product of an over-active imagination...
+-----
Date: Fri, 9 Apr 1993 14:50:49 GMT
From: mvb.saic.com!unogate!news.service.uci.edu!usc!howland.reston.ans.net!gatech!
concert!uvaarpa!murdoch!livia.acs.Virginia.EDU!jeg7e@network.UCSD.EDU
Subject: Want Jammer in Slammer
To: info-hams@ucsd.edu
In article <734345121.AA00756@his.com > Don.Hay@f716.n109.z1.his.com (Don Hay)
>Organization: Hewlett Packard, Cupertino
>A 2 meter jammer has driven me to post! A local repeater here in the bay
>area has been putting up with a jamming station for quite some time now!
>We all have been practicing the obvious, ignore him, he will eventually
>go away. Lately though, this station has interferred with "Emergency"
>phone patch traffic on numerous occasions. This is where I draw the line!
```

You draw the line before you break the law. So, sorry but no blanket party, as much fun as that could have been.

What you do is serve this fellow notice after you locate him, by notarized letter perhaps, with a copy to numerous local, state and federal agencies. (like FCC, police, EMS, FEMA, whatever.. Remember, your repeater association or ARC are probably involved with ARES/RACES etc...)

I get a feeling that will put a damper on this individual miscreants 'fun'

What do you think?

- -

These opinions may not be unique, and they may not express the views of U.Va.

Jon Gefaell, Computer Systems Engineer \	/	SILENCE = DEATH
Security and Technology Planning R&D \	/ /	Hate is *NOT*
I.T.C. Administrative Computing Services \ /	/	a Family Value!
The University, UVA. Carruthers Hall \/\	/	
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	\/~~~~	73 de KD4CQY

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End of Info-Hams Digest V93 #442 ***********